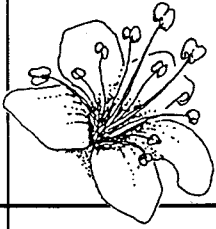


Kelseya uniflora



Kelseya

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SPRING 1996

Newsletter of the Montana Native Plant Society

Spiranthes diluvialis – A Threatened Orchid In Montana

– Bonnie Helden

Discovery of Ute ladies' tresses (*Spiranthes diluvialis* Sheviak) in Montana has doubled the state's roster of plants designated as threatened under the Endangered Species Act. This species, along with *Howellia aquatilis* (see KELSEYA 8:2, Winter 1995), makes TWO.

Ute ladies' tresses is a member of the Orchid Family. Like the hooded ladies' tresses (*Spiranthes romanzoffiana*), it is a wetland plant, but it grows at much lower elevations in drier landscapes compared to the other species. The news of its discovery serves to alert botanists working in potential habitat, and illustrates how the Endangered Species Act currently works for plants.

I discovered *Spiranthes diluvialis* in Jefferson County in 1994, representing a major northward extension from the center of its range in Utah, Colorado and Nevada. It was barely beginning to break bud in early August, but one look was enough to see that its flowers were different from *S. romanzoffiana*, the only known species of ladies' tresses in the state.

Attempts at wrestling its characteristics through regional floras were futile. It bore some of the features of a recently-described ladies' tresses from the Great Plains that was familiar to me, *Spiranthes magnicamporum*, so the specimen was sent to the taxonomic authority for the Orchid Family in the Flora of the Great Plains (Great Plains Flora Association 1986).

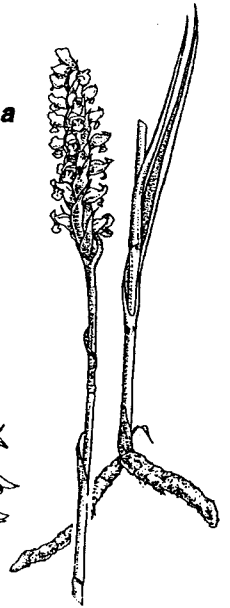
Uncertainty persisted, and I tapped information mentioned by Wyoming botanist Walter Fertig, about discovery of *Spiranthes diluvialis* in Wyoming the previous year. Walter had featured the Wyoming discovery made by Ernie Nelson (Rocky Mountain Herbarium) in the Wyoming Native Plant Society newsletter. He sent a newsletter copy, and its description matched! The Montana specimen was forwarded to Charles J. Sheviak (State Museum of New York), the orchid taxonomist who had described *Spiranthes diluvialis* in 1984.

All of the specimen's characteristics fit *Spiranthes diluvialis*, a species which is morphologically intermediate between *S. romanzoffiana* and *S. magnicamporum*. It is a perennial herb with persistent basal leaves. Flowers, produced in August, are long, slender and whitish, with the lip exposed in lateral view (see illustrated comparison between the flowers of *S. diluvialis* and *S. romanzoffiana*). Cytological and genetic studies suggest that it evolved from a hybrid between these two species which became isolated by reproductive barriers. Its base pair of chromosome numbers ($2n=74$) equals the sum of its parent species (*S. romanzoffiana* $2n=44$; *S. magnicamporum* $2n=30$). Sixteen months after its original discovery, Dr. Sheviak was able to provide a chromosome count that unequivocally confirmed *Spiranthes diluvialis* from Montana.

Discovery of a listed plant automatically extends its protection to the state where it is newly discovered because plant species protected under the

– continued on Page Eight

*Spiranthes
romanzoffiana*



*Spiranthes
diluvialis*



Illustrations by Carolyn Crawford
REPRINTED FROM 'AQUILEGIA', THE
NEWSLETTER OF THE COLORADO NATIVE
PLANT SOCIETY

From the President

Take heart, spring is just around the corner! As I write to you, the snow is melting and dripping off the roof! Lots of moisture to start off the growing season is always welcome. Treat yourself to an early field excursion, check out the spring trips announced in this issue, and look for a separate field trip mailing in mid-May. To get your trip listed in the field trip mailing, please send information to the *Calendar* coordinator (see page 4) by **April 26**.

Projects Funded

At our Winter Board of Directors meeting, we discussed and passed the budget for this fiscal year -- no continuing resolutions needed! Please review our 1995 financial report and the proposed budget for 1996. Although we had expected to dip into our savings, the past year we actually made money due primarily to the fundraising activities at our annual meeting. We're fortunate to have surplus funds to contribute toward worthwhile projects which benefit native plants.

Also announced in this issue are the recipients of the 1995 Special Projects awards – congratulations to the winners! We have budgeted \$500 in 1996 to continue this program, and notices for 1996 grant applications will appear in the summer and fall *KELSEYA* issues. Please feel free to comment on the treasury reports either to me or Madeline. And a big thanks to Madeline for all her efforts to keep us up to date moneywise and memberwise!

And speaking of the membership, PLEASE don't forget to renew for 1996. Check your mailing label now; if it says "2/96" at the end of the top line, send in your renewal today.

Klaus Lackschewitz Memorial

The Clark Fork Chapter announced that it is using proceeds from the Klaus Lackschewitz Memorial Fund to erect an interpretive map display at the UM Native Garden in Missoula. Since 1966 Klaus was a major force in establishing and maintaining this unique feature on campus. The map will enable visitors to identify the many wonderful natives grown in the garden and tended by Native Plant Society members. Clark Fork also received memorial gifts from the friends and family of Mark Bjorlie, and this fund will purchase a book on rock garden plants for the public library in Missoula. We appreciate these thoughtful donations which we make great efforts to put to good uses.

Throughout the year we also receive donations from our membership, above and beyond regular dues. Thanks to those of you who have given additional contributions.

Upcoming Annual Meeting

The Flathead Chapter has organized a fun and informative weekend for us June 28-30. See the pre-registration form and schedule of events in this issue. This is your last chance to pre-register at the lower price. Please study the list of trips and workshops and plan to have alternative choices, because each listing has a limit to the number of participants allowed. Sign-up is first come, first served, starting on Friday night and continuing on Saturday morning.

Questions about the workshops or field trips taking place during the 1996 Annual Meeting should be directed to Rachel Potter in Columbia Falls, 892-2446, or Betty Kuropat, in Whitefish, 862-0877. One bit of information that may be helpful to members planning on going on the "Glacier Natl Park Native Plant Nursery and Revegetation Projects" field trip is that it begins 40 miles from the Three Forks Campground, in West Glacier, and the trip to Logan Pass is an additional 32 miles.

We also encourage you to sit in on a committee meeting on Sunday morning. We need your participation in each of the important native plant-related areas in order to accomplish our goals as a society. At our business meeting on Friday night, committee chairs will describe the agendas for these meetings.

MNPS on the Internet

The Board discussed plans to have KELSEYA available to Internet browsers as part of the Montana Natural Heritage Program's home page. Plans are moving forward on this as we go to press – more in the summer issue. In the meantime, you can access MNHP's home page for an array of flora (and fauna) related information: <http://nris.msl.mt.gov/mtnhp/nhp-dlr.htm>.

Elections

New officer nominees are listed on the pullout ballot. Your vote counts, even though we only have one official nominee for each position. Thanks to these individuals for offering their time and energy to MNPS. Our newest Landscape Committee Chair is John Pierce of Missoula. John has much to do with the native planting at John Toole Park along the Clark Fork River. He is very knowledgeable in native restoration, and we're lucky to have his participation.

Looking forward to the warm weather and plant life! After a winter full of indoor programs, it's time to move outdoors!

– Linda Iverson

...<<<<<<<<<<CONSERVATION BULLETS>>>>>>>>>>...

INITIATIVE AIMS TO PROTECT CLEAN WATER

Citizens concerned about toxic and carcinogenic pollution in Montana's clean surface and ground waters have developed a ballot initiative which would prevent pollution from future hard rock mining (I-122). Montanas for Clean Water (MCW), the coalition promoting the initiative, will begin collecting 23,000 signatures from registered voters on March 23 in order to put the clean water initiative on the November ballot.

If passed, the measure would require that new precious-metal mines, expansions of existing mines that use cyanide, or precious-metal exploration activities treat their discharge waters either to meet state water quality standards or to remove 80% of pollutants, whichever will protect water quality more. The new law would affect any mines or mine expansions that have not been permitted by the November election. Unless they are permitted before then, major new mine proposals – including the New World

Mine near Yellowstone Park, and the Seven-Up Pete Mine on the Blackfoot River – would have to meet the requirements of the initiative. Similarly, expansions of the Zortman/Landusky mines would have to comply if they are not yet permitted. In contrast, future expansions of the Stillwater Mine in Nye and the construction of the permitted but still undeveloped East Boulder Mine south of Big Timber will not be affected.

A coalition of environmental groups sparked the formation of MCW in response to changes made by the 1995 Legislature that weakened Montana's water quality laws. For example, because of those changes, groundwater brought to the surface by exploration for the Seven-Up Pete Mine is being discharged without treatment despite high levels of arsenic.

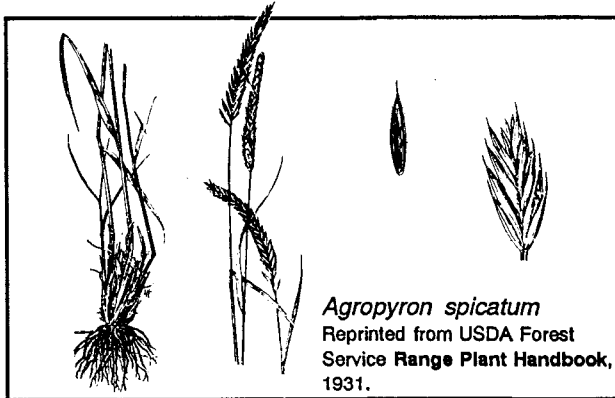
MCW's Co-Chairs are Gary Buchanan, a Billings businessman, and Francis Bardanoue, a Harlem rancher and recently

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A DIFFERENT VIEW OF CRESTED WHEATGRASS

– Peter Lesica

It is common knowledge that invasions by exotic plants are occurring at an increasing rate and are a serious threat to native communities, but it is not so well appreciated that many of the most harmful exotics in North America were introduced intentionally. Exotic plants such as tamarisk (*Tamarix* spp.), Russian olive (*Elaeagnus angustifolia*), and purple loosestrife (*Lythrum salicaria*) were originally brought to North America for agricultural or horticultural purposes but have displaced native species and threaten native biological diversity.



The most commonly planted exotic grass in western North America is crested wheatgrass (*Agropyron cristatum*, *A. desertorum*). It is estimated that there are about 26 million acres of crested wheatgrass on this continent, an area roughly the size of Ohio. On the Great Plains, much of this was planted during the drought of the late 1920s and 1930s when large areas of cropland were abandoned. However, crested wheatgrass continues to be planted over large areas of the northern Great Plains today.

In the past ten years much of the marginal cropland returned to perennial grass cover under the Conservation Reserve Program (CRP) was planted to crested wheatgrass instead of native grasses (see KELSEYA, Spring 1995). Although crested wheatgrass has been considered a beneficial introduction, there is cause for concern.

There are many reasons for the popularity of crested wheatgrass. It is tolerant of cold and drought, and suited to most soils. Crested wheatgrass establishes easily from seed, responding well to fertilizer. It has a high nutritive value and consistently produces more livestock forage than native Great Plains grasses. Furthermore, stands of crested wheatgrass resist invasion by weeds. The advantages of crested wheatgrass are obvious, and it is not uncommon for livestock managers to break native prairie in order to plant it. However, there are also disadvantages which do not have immediate or obvious economic impacts, although their long-term effects to our native prairie communities may be substantial.

Few people who have walked through crested wheatgrass pastures can deny that native plant diversity is low. Our rich prairie communities, which often support 50–100 native plant species, have been converted to associations of a few species dominated by exotics. Crested wheatgrass is a strong competitor. It takes up phosphorus faster than native grasses, and its seedlings are better at sequestering moisture at low temperatures. Few native plants are able to invade crested wheatgrass plantings, which often remain virtual monocultures for at least 40–50 years. Consequently, crested wheatgrass plantings will not revert through succession to native prairie. The paucity of plant diversity in crested wheatgrass pastures undoubtedly results in lower diversity of invertebrate and vertebrate animals as well, although studies documenting this effect have not been done.

Several studies suggest that there may be a long-term negative impact of crested wheatgrass stands on the soil. The

strong competitive ability of crested wheatgrass insures that there is a higher proportion of exposed soil than in native mid-grass prairie – as much as ten times more in some cases. More exposed soil leads to higher rates of erosion by wind and water.

Perhaps more serious than increased wind and water erosion is the possibility that stands of exotic grasses cannot maintain the chemical quality of the soil as well as native grasslands. Although crested wheatgrass has much higher above-ground productivity compared to mid-grass prairie, below-ground productivity is significantly lower. Furthermore, the organic matter produced by the roots of crested wheatgrass has a lower nutritive value (higher C/N ratio). The lower quality of organic matter in the upper soil horizons under crested wheatgrass could lead to the soil microbial communities removing nitrogen from the soil humus, thereby degrading soil quality and leading to slower rates of soil building. Crested wheatgrass provides the immediate benefit of greater quantities of protein to grazers at the expense of long-term losses in soil quality.

We presently lack the knowledge to accurately determine the long-term effects of crested wheat on the Great Plains grassland ecosystem. However, there are reasons to believe that it alters the environment in many ways that may not be desirable. Further research on the changes in soils and plant/animal diversity associated with crested wheatgrass are needed to assess its impact. However, in view of what we do know, the continued conversion of native prairie and planting of exotic species with potentially harmful effects seem ill advised. Our native prairies are a precious resource. Most of this resource has already been lost (see KELSEYA, Spring 1995). Every effort should be made to preserve what is left and restore unproductive croplands with native species rather than exotics.

SUGGESTED READING:

- Dormaar, J.F., M.A. Naeth, W.D. Willms, and D.S. Chanasyk, 1995. Effect of native prairie, crested wheatgrass (*Agropyron cristatum* (L.) Gaertn.) and Russian wildrye (*Elymus junceus* Fisch.) on soil chemical properties. *Journal of Range Management* 48:258–263.
- Johnson, K.L. (ed.), 1986. Crested wheatgrass: its values, problems and myths; symposium proceedings. Utah State University, Logan.

AVAILABLE SPRING 1996:

Restoring Diversity: Strategies for Reintroduction of Endangered Plants

Donald Falk, Constance Millar and Margaret Olwell
Island Press, \$39.95 cloth, \$27.50 paper

In 1993 the Center for Plant Conservation (at the Missouri Botanical Garden, St Louis MO) sponsored a national conference on preserving biological diversity and reintroduction strategies. This publication incorporates and expands on the issues dealt with by that conference.

Included are the strategic and legal context for rare plant restoration, the biology of restoration, use – and misuse – of mitigation in conservation of rare plants, and specific case studies.

Restoration and reintroduction of endangered species has been a learn-by-doing venture, and this book's contribution includes filling technical and policy gaps and providing operational tools for successful restoration.



MEETINGS

Wednesday, April 3, Valley of Flowers Chapter: 7 pm, Emerson Cultural Center Library, 2nd Floor, 111 S Grand, Bozeman. The subject will be, "Showy Wildflowers of the Northern Rockies and Plains." A business meeting precedes the program; please bring your ideas and suggestions, and join us at 6:30 pm.

Thursday, April 11, Clark Fork Chapter: 7:30 pm, Room 307, Botany Building, UM campus, Missoula. Dr Ethan Russo will present a talk on "Ethnobotany of the Machiguenga Tribe in Peru."

Wednesday, April 17, Flathead Chapter: 7 pm, Swan Ranger District Building, Bigfork (turn west off Highway 35 at the stoplight across from the bank). Please note the different meeting place for this month only. Allen Rowley of the Flathead National Forest will be giving a slide show on "A Historic Perspective of Fire in the Northern Rockies." There will be a business meeting first at 5:30 -- come help us plan the annual meeting and let us know how you can help!

Sunday, April 21, Maka Flora Chapter. Our spring meeting is tentatively set to be held in Medicine Lake. We plan to set our 1996 summer field trip schedule and to make a final decision on bidding to host the state annual meeting [in 1997], so give these items some thought! Reps of the local NRCS office will also attend in order to explore the possibility of cooperating with Maka Flora Chapter members on an inventory and status review of the remaining native prairie in Sheridan County. Notices will be mailed to all Chapter members for exact time/meeting place.

Tuesday, April 23, Kelsey Chapter: 6:30 pm. The First Annual (we hope) Weed ID Training Session for Mount Helena. Knapweed, dalmation toadflax, and musk thistle are our targets. Celebrate Earth Day by helping return Mt Helena to the natives! This evening will focus on training and strategies, with weed pulls set for later in the spring. Bonnie Heidel is coordinating this project in conjunction with other agencies and groups, so please call Bonnie at 449-3764 for more information or input.

Friday, April 26, Kelsey Chapter: 7 pm, Lewis & Clark Library. "Edible Mushrooms," with Larry Evans of the Western Montana Mycological Association. What's there to eat in these woods? Don't miss this, it will be loads of fun! If enough interest is shown, we will plan a spring outing to actually gather some of what we will see this evening. Refreshments (non-fungus) will be served.

Tuesday, April 30, Herbarium Night, Clark Fork Chapter: 7:30 pm, Rm 303, Botany Bldg, UM campus, Missoula. Rush over to hear Peter Lesica talk about "The Juncus Among Us." Bring a hand lens if you have one.

Thursday, May 9, Clark Fork Chapter: 7:30 pm, Room 307, Botany Building, UM campus. Madeline Mazurski and Molly

Galusha will present a talk on "The Water-Wise Garden," which will include a discussion on integrating natives in the garden scheme. We'll also outline the Mount Sentinel Mapping Project.

Wednesday, May 15, Flathead Chapter: 7 pm, Fish, Wildlife and Parks Building, Meridian Road, Kalispell. Maria Mantas, Flathead National Forest botanist, will be giving a slide program on "Rare Plants of the Flathead." There will be a business meeting at 5:30 -- everyone's welcome.

Friday, June 21, Kelsey Chapter: 7 pm, Lewis & Clark Library, Helena. "Bioregional Herbalism," a slide show and discussion of regional medicinals and ethical wildcrafting, with herbalists Gregory and Mary Tilford. Gregory is author of "The EcoHerbalist's Fieldbook," and Mary is the author of "An Herbalist's Quick Reference -- Medicinal Plants of the Northern Rockies." Join us for a summer solstice celebration! Refreshments served.

FIELD TRIPS

WINTER PLANT IDENTIFICATION

SATURDAY, APRIL 13

Enhance your enjoyment of being out in the winter landscape -- learn to recognize Montana's native flora without the helpful clues of flowers or (usually) foliage. Join Jan Nixon at Museum of the Rockies for a brief introductory session at 1 pm, then we'll head out (car pool) for a ramble around the winter countryside, returning around 4 pm. Winter plant keys will be available. Bring a hand lens if you have one, and dress for the weather. There is a fee for this session; call 994-6618 for reservations.

VERMILION RIVER ANCIENT COTTONWOODS

SATURDAY, APRIL 19

Meet at Melnick's Local Store in Trout Creek at 9 am. We'll carpool up the Vermilion River and spend several hours in a riparian zone dominated by a small grove of giant cottonwoods. Bring a lunch. For more info, call Dennis Nicholls at 827-4354.

A WILDFLOWER WALK FOR FAMILIES

TUESDAY, APRIL 23

A nice way to celebrate Earth Day with your kids, led by Nancy Breuninger and Sue Newell. Meet at 6:30 pm at the Mount Helena parking lot. Call Sue at 442-8142 for more information.

BITTERROOT WILDLIFE REFUGE, SATURDAY, MAY 4

A walk with Peter Lesica to discover what is up and about. Meet at 10 am in the BEST parking lot in Missoula to carpool, or be at the south side of Corvallis High School at 10:45 am. Bring a lunch and water. Call Peter (728-8740) if you have questions.

BLACKFOOT RIVER BLUFFS, TUESDAY, MAY 8

Meet at the northeast end of Eastgate parking lot in Missoula at 6 pm. With steep slopes and poison ivy, this hike is not for the weak-kneed. Call Peter Lesica, 728-8740, if you have questions.

WILDFLOWERS OF THE BRIDGER FOOTHILLS

SATURDAY, MAY 18

The south-facing slopes and ridges of the Bridger foothills offer early-season viewing of many of the Gallatin Valley's typical
- continued next page

CALENDAR COORDINATOR

Tulli Kerstetter, MNPS vice president, is now serving as coordinator for all meeting and field trip notices, field trip reports, and chapter activity writeups. Please send them typed or on disk (see back page for specs) no later than **June 1** for inclusion in the Summer issue of the newsletter, to: KELSEYA, Attn: Tulli Kerstetter, P O Box 6444, Bozeman MT 59711-6444.

BRIDGER FOOTHILLS, continued:

wildflowers, in a variety of habitats. Join Jan Nixon for a stroll along the base of the Bridgers, from 1 pm to around 4 pm. Meet at the "M" picnic area parking lot on Bridger Canyon Rd. Make reservations with Museum of the Rockies, 994-6618, for this trip; there is a small fee.

MT SENTINEL MAPPING PROJECT, WEDNESDAY, MAY 22

Join Anne Garde, Kelly Chadwick and other members of the Clark Fork Chapter in this mapping effort. Meet at "M" Trailhead in Missoula at 6:30 pm. The project plan will be explained at the May 9th chapter meeting.

HANGING VALLEY - SATURDAY, MAY 25

Walk with Keith Leatherman of the USFS through old growth forest, see divided bladderpod, view *Kelseya uniflora*, and use the GPS (Global Positioning System). Meet at the Helena Natl Forest Supervisor's Office (by the airport) at 8 am, or meet us at Vigilante Campground at 9 am. This will be a moderately strenuous outing.

ORCHIDS OF CENTRAL MONTANA, SATURDAY, JUNE 1

A joint outing with Kelsey Chapter and the Great Divide Orchid Society. We will journey to the Gates of the mountains to view mountain ladyslipper (*Cypripedium montanum*) and McDonald Pass to encounter spotted coralroot (*Corallorhiza maculata*). Call Cindy Rose at 458-6462 for information and registration. This outing includes the famous boat trip at The Gates of the Mountains!

NATURAL BRIDGE - SATURDAY, JUNE 1

Meet at 12 noon at the parking lot behind the Grand Hotel in Big Timber, or at the Natural Bridge Scenic Area parking lot (28 miles south on the Boulder River) at 1 pm. Linda Iverson will lead a half day hike with the help of botanist Peter Lesica, exploring the plants growing in the Scenic Area. Call Linda at 932-5840 if you need more info.

SCALING MOUNT JUMBO, SATURDAY, JUNE 8

Clark Fork Chapter joins with S. Valley Land Trust for a wildflower hike to the top of Mount Jumbo near Missoula (with option to peak-out earlier). Meet at 10 am at the east end of Cherry Street. Bring a lunch, water, and light rain gear. If you need more information, call Steve Shelley at 542-0620.

BLUE MOUNTAIN FIRE LOOKOUT, WEDNESDAY, JUNE 19

Explore the area around the Blue Mountain Lookout with Virginia Vincent. Leave BEST parking lot in Missoula at 6:30 pm for carpooling. Gate will be closed behind us, so please be prompt. Call Virginia at 543-8078 for details.

BIOREGIONAL HERBALISM

SATURDAY/SUNDAY, JUNE 22-23

A two-day class/field trip organized by Kelsey Chapter, focusing on regional medicinals, plant identification, and preparations, with Gregory and Mary Tilford. What a great way to welcome summer! Call Kathy at 449-8965 for information and registration. The weekend session is preceded by a slide show on Friday evening; see the MEETINGS section.

WEED NIGHT @ JOHN TOOLE PARK, TUESDAY, JUNE 25

John Pierce, who has spearheaded efforts in John Toole Park,

Missoula, will show and tell regarding progress of re-establishing native vegetation. Meet at the east end of 4th Street East at 7 pm. Bring plastic bags to collect mature seeds of annual bromes. Call John at 542-2640 for details.

ALPINE ECOLOGY OF THE BEARTOOTH MOUNTAINS FRIDAY EVENING, SATURDAY & SUNDAY, JULY 5-6-7

Learn how wind, water and topography combine to create distinctive habitats above treeline on the Beartooth Plateau. A slide show at Museum of the Rockies, Bozeman, on Friday evening will introduce participants to these factors, and to some of the plants, animals, insects and birds that make the alpine home.

Leave the Museum parking lot at 8 am on Saturday and travel to Red Lodge, with discussion stops along the way. Lunch (provided) at the Rock Creek Vista Area, then spend the afternoon on the Plateau. The group will stay in Red Lodge Saturday night; dinner and breakfast on your own. We'll spend Sunday at various locations on the Plateau (lunch provided); return to Bozeman around 6:30-7pm on Sunday. Although we will not hike far or fast, this trip is rated as moderately strenuous, because we'll be at or above 10,000 feet elevation much of the weekend. Participants must be in good physical condition.

There is a fee for this trip (transportation, lodging and lunches are provided); make reservations with Museum of the Rockies, 994-6618. Group size is limited.

KNAP (and other) WEED PULLOUT, KIRK HILL TUESDAY, JULY 9

As the ongoing effort to eradicate spotted knapweed at the Kirk Hill Nature Area approaches success, we are able to turn our attention to some of the other troublesome invaders: cow cockle, tansy, hounds-tongue and mullein, among others.

Meet at the Kirk Hill parking area, S 19th Ave in Bozeman, at 6 pm and stay as long as you can - we'll pick until dark. Bags will be provided; bring gloves and a digging tool if you want them.

FIELD TRIP/ACTIVITY REPORTS

MAKA FLORA CHAPTER

Maka Flora Chapter winter activities were limited to a meeting held on January 21. In spite of a balmy high of -19°F, we had a good turnout and enjoyed a slide show and talk by local biologist and teacher Jim Gustin on the Laurentian Plateau of Quebec. The main business of the day was the update and adoption of the Chapter's constitution. Thanks, Marcia, for hosting the meeting.

THE RARE & THE BEAUTIFUL - NEAR NOXON

I cursed to myself as stiff limbs swatted me in the face. The brush was so thick, I swore that no living creature could make its way through; yet I struggled uphill against the ninebark, service-berry, maple and shiny-leaved ceanothus. The tangle of dense shrubs repelled me so that for every step up I seemed to stumble three back.

I cursed under my breath as salty sweat rolled down my forehead, off my brow, and stung my eyes. The sun glared down

- Continued on Page Six

**RARE & BEAUTIFUL, continued from Page Five:**

from a liquid sky – its blue expanse looked like an ocean. The heat on this southern slope washed over me from above, like a broiler.

I cursed aloud when I slipped and fell to the rocky hillside, frantically reaching for something to break my fall so I wouldn't slide halfway down the mountain. Lying prostrate for a moment, my chest heaving from the exertion of climbing all morning, I rolled over onto my side. And right into a cluster of thin, blooming plants, one of which went up my nose. Dumbfounded, I stared at a pale pink flower looking me right in the face. I blinked, and recognition creased by puzzled brain.

Common *Clarkia*. Yes! Common *Clarkia* – *Clarkia rhomboidea*. I got to my knees and looked around. There were ten, twenty...maybe fifty plants decorating the sparse soil around me. At long last, after five years of searching, I had found one of the rarest plants in Montana. Common *Clarkia*.

That particular day last summer preceded three others during which a vast population of *Clarkia rhomboidea* was eventually mapped out on a steep, brushy slope on Government Mountain, near Noxon in far northwestern Montana. I was up there doing timber stand exams for the Forest Service. The *Clarkia* population stretched over 120 acres, with thousands of plants scattered in small and large openings among the ponderosa pine and Douglas fir widely distributed through the dense brush. As it turned out, on the day before this find, and over the course of the next couple of weeks, three other populations of this diminutive *Clarkia* were discovered by Forest Service personnel in western Sanders County, and one in southern Lincoln County.

Prior to this, *Clarkia rhomboidea* had been known from just one site in the state – a small population near Thompson Falls. I had seen it once five years ago in Idaho on the southeast side of Lake Pend Oreille, and even though I had searched for it along the lower Clark Fork River since then, I had been unsuccessful until now. Then all of a sudden, it pops up in several areas! As a sensitive species on the Kootenai National Forest, this has turned out to be an important find. Questions as to why it showed up in such large numbers this summer (at least two of the populations numbered well into the thousands) are being discussed. You may be familiar with the genus *Clarkia* from the much showier ragged robin, or stag's horn (*Clarkia pulchella*). *Clarkia* is in the Evening Primrose family – the Onagraceae.

Interestingly, common *Clarkia* isn't the only plant of special concern that has turned up in Sanders County recently. Washington Water Power biologists conducted surveys in preparation for relicensing two dams the company operates on the lower Clark Fork River (Noxon Rapids and Cabinet Gorge). Two sensitive species were discovered along the shorelines of the reservoirs impounded by these dams during those surveys: pyramida spiraea (*Spiraea x pyramidata*) and twin clover (*Trifolium latifolium*).

In addition, surveys conducted in Rock Creek, near Noxon, while collecting baseline data for the Rock Creek Project (a giant silver/copper mine proposed by ASARCO) turned up several interesting species, including a sensitive species on the Kootenai: crested shield fern (*Dryopteris cristata*), which was discovered in Sanders County for the first time. Also in Rock Creek this past

summer, several species of grapeferns (*Botrychium* spp) turned up. Many members of this genus are sensitive species on the Kootenai, and elsewhere in the state.

When you chat with people who were out in the woods around these parts last year, you begin to see what a tremendous summer it was for finding unusual plants. It's a great testimony to how effective the sensitive species program has been. With so many eyes out looking, we can truly determine those plants that really are rare, and strive to protect them and their habitat – while learning more about those which appear to be rare only because we have known so little about them.

– Dennis Nicholls

Western At-Large Representative

USING NATIVES IN OUR LANDSCAPES

Xeriscape, water wise use, native landscapes – these are words that we are hearing more often. Native plants are used in many of these, yet the Montana Native Plant Society, for the most part, is not mentioned when these concepts are discussed.

What I have done, and I am sure many members have also, is plant natives around my residence. Can we do more?

Another project I did was build a series of native xeric plant communities in a highly used city park near downtown Missoula (John Toole Park). Here large numbers of people can be exposed to native plant communities and the plants within them. Missoula also has the botany greenhouse garden. These areas can produce seed that be germinated, grown and sold to the public.

Workshops should also be held on these topics. The Plant Source Guide and MNPS Collecting Guidelines can be mentioned during these sessions. I have found it far more informative to discuss a plant while the audience can see and feel it in a native landscape.

The Clark Fork Native Prairie in John Toole Park covers about one hectare. I do not recommend chapters build such a large landscape; any size will do if well done. It should be in an area that gets a lot of foot traffic from the entire community. I see projects such as this as a way to educate the public, as an income source, and to increase exposure for the Plant Society in the community.

– John Pierce, Chair

Landscaping/Revegetation Committee

GLACIER INSTITUTE OFFERS WILDFLOWER CLASSES

Each summer, Glacier Institute offers wildflower-related classes (as well as many other topics) in the marvelous settings in and around Glacier National Park. Here's a sampling:

- June 21–22 Native Flora of Glacier
- July 3 Wild Medicinal Herbs I
- 6–7 Making Wild Medicines
- 10–11 Wildflowers of the Eastern Slopes
- 22–23 Restoration Ecology
- 27 Wildflower Wanderings: Logan Pass/Highline Trail
- 28 Wildflower Wanderings: Siyeh Pass/Preston Park
- 29–31 Glaciers to Glacier Lilies: Geology & Plant Ecology
- August 2–3 A Walk in the Alpine
- 4 Wild Medicinal Herbs II

Many of these classes fill up early, so if you want to register, or need more information, call or write: The Glacier Institute, P O Box 7457, Kalispell MT 59904; 406-755-1211.

QUESTIONS and ANSWERS ABOUT SWEETGRASS

– Bonnie Heidel

Few wild plants are so widely known in trade – and so little known in the wild – as sweetgrass (*Hierochloë odorata*).

Sweetgrass is widespread in Montana but is usually very localized and found in low numbers. It is hard to recognize except in spring or early summer when it produces seed stalks (see illustration). Its unmistakable bronze spikelet is surrounded by transparent papery glumes, falling soon after maturation. The base of the seed stalk is distinctly reddish. But these characters are sometimes hard to apply in the field because it is strongly rhizomatous, and does not consistently produce stalks each year.

Herbarium specimens at Montana State University (MONT) and the University of Montana (MONTU) document its occurrence in twenty Montana counties to date, including Beaverhead, Blaine, Broadwater, Cascade, Deerlodge, Fergus, Flathead, Gallatin, Glacier, Granite, Lake, Lewis and Clark, Lincoln, Madison, Missoula, Park, Powell, Ravalli, Stillwater and Teton counties. It is likely to be found in most counties with glaciated terrain.

Most Montana Indian tribes burned sweetgrass as incense for its purifying and protective properties. In many traditions, it took on value as a spiritual medicine. It was said that the woven strands of dried sweetgrass symbolized divine attributes of Mother Earth to the Northern Cheyenne (Hart 1976).

Hierochloë is also native to Europe and was used in parts of Europe for “strewing before the doors of churches on festival days” (Hitchcock 1950).

It is still collected in Montana for personal use, and increasingly for commercial trade.

The USDA Plant Materials Center in Bridger initiated studies in 1994 to take the pressure off plants in the wild by propagating sweetgrass and to provide demonstration plantings to the tribes. Replicated dormancy tests are nearing completion, and vegetative transplants are thriving but have not produced seed to date.

Sweetgrass occupies wet meadow habitat corresponding with good water sources, for it is often associated with freshwater springs and seeps. I have also found it in aberrant settings and quantities below a former Indian village on the Missouri river, and in semi-dry turf along a mountain pass at the crest of the pass; observations which indicate that it may also have been accidentally spread – if not deliberately sown.

Two other grasses that are not native to Montana are sometimes sold as sweetgrass, including sweet vernalgrass (*Anthraxanthum odorata*), native to the West Coast, and manna-grass (*Glyceria fluitans*) native to the eastern United States. They

are more robust and easier to harvest in the wild, and produce braided cords that are long compared to much of the sweetgrass in Montana.

The alpine sweetgrass (*Hierochloë alpina*) is also reported from northwestern Montana, but there is no known documentation.

Although only the sweetgrass leaves are collected, the species is subject to overcollecting. It is also sensitive to grazing.

On behalf of both sweetgrass and its seekers, people who are interested in it are best advised to search for it independently and to practice judicious collecting so that individual populations are not threatened. Hart (1976) mentions that: “Today sweetgrass has become scarce and is hard to find.” More recent information indicates that it is vulnerable though not immediately threatened in the state, and this article highlights the information that I have gathered in responding to repeated questions about it.

Part of the reason for its rarity, notes Jim Spear (Northern Cheyenne medicine man), is the loss of old ways (Hart 1976). Any comments from traditional users on the collection or conservation of sweetgrass that

could be shared in this newsletter would be welcome.

The Montana Native Plant Society is checking information on commercial growers which carry sweetgrass to ensure that they propagate it rather than transplant it from the wild. This information will be included in the updated Native Plant Source Guide, which is currently in the works.

REFERENCE:

Hart, Jeff, 1976 *Montana Native Plants and Early Peoples* Montana Historical Society Press, Helena MT.

NEW BOOK:

The Alpine Flora of the Rocky Mountains Vol I: The Middle Rockies

Richard W Scott

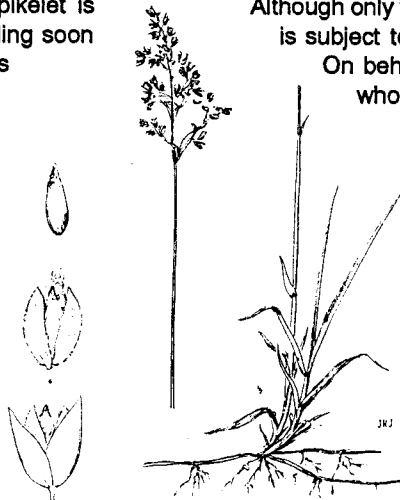
University of Utah Press, 768 pp, 611 maps

Cloth \$110.00; available June 1996

A monumental flora, first of a projected three-volume set, covering all flowering plants and vascular cryptogams known to occur above timberline, as well as timberline conifers.

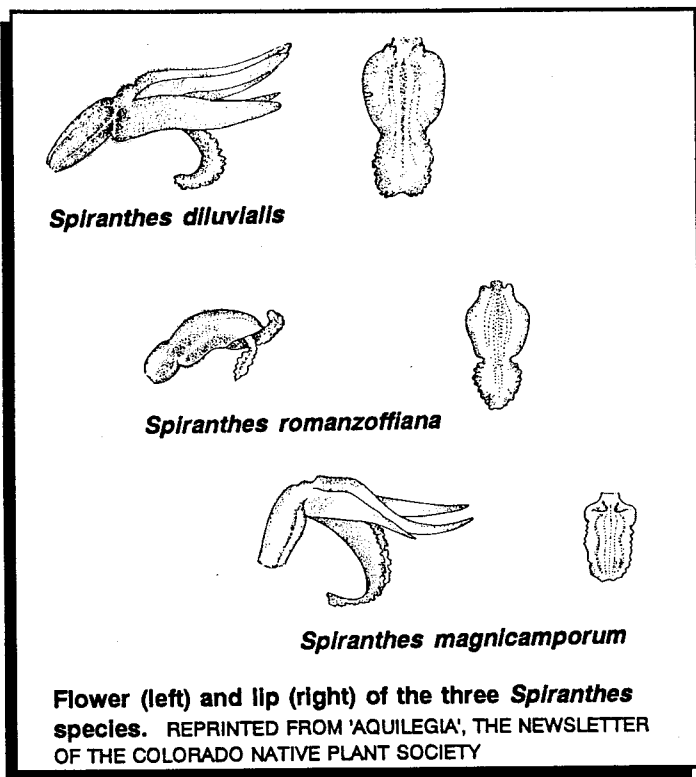
All mountain ranges of Wyoming, plus the Beartooth range in southern Montana and the Wasatch and Uinta ranges of Utah are covered, giving distribution maps and illustrations of 611 species, along with discussions of the alpine environment and geomorphic processes, plant adaptations to high elevations, and descriptions of the various ranges and basins. The species covered represent a wide spectrum of life forms and flowering types.

Botanical keys, glossaries of alpine and botanical terms, and indices of common and Latin names are included in the volume.



Hierochloë odorata

Reprinted from Hitchcock et al,
Vascular Plants of the Pacific Northwest, 1969



Endangered Species Act are addressed rangewide – or not at all.

While the geographic extent of Ute ladies' tresses in Montana has yet to be defined, its habitat is restricted to low elevation valley bottoms. It occupies moist stream-banks, wet meadows, and abandoned stream channels at elevations below 6000 feet, mostly on sub-irrigated alluvial soils in full sun.

Sheviak (1984) suggested that this species was more widespread during wetter times in the Pleistocene, but has been restricted to locally moist areas as the climate became progressively drier. Much of its habitat in Colorado and Utah has been altered in the past century and a half. Among its extant populations, many are threatened or highly vulnerable.

Because the single Montana population of the species occurs on private property, it is not protected under the Endangered Species Act. The good news is that the owner has expressed interest in its protection.

Technical description of this species is provided in: Sheviak, C. J. 1984. *Spiranthes diluvialis* (Orchidaceae), a new species from the western United States. *Brittonia* 36:8-14. Additional information is being sought to determine the status and management requirements of *Spiranthes diluvialis* in Montana.

<<<CONSERVATION BULLETS>>>... continued from Page Two:

retired state legislator. Treasurer is Land M Lindbergh, a landowner on the Blackfoot River, and Secretary is John Bohlinger, a state legislator from Billings. The Board includes Dan Fraser, former chief of Montana's Water Quality Bureau, and representatives from a number of organizations: Northern Plains Resource Council, Montana Wildlife Federation, Montana Wilderness Assn, Montana River Action Network, Montana Council Trout Unlimited, Montana Eenvironmental Information Center, Clark Fork-Pend Oreille Coalition, and Montana Audubon Council.

For more information about the initiative, contact Montanas for Clean Water at 406-245-9320, or write P O Box 3374, Billings MT 59103-3374.

DEERLODGE FOREST BANS UNCERTIFIED FEED

Planning a trip with stock into southwest Montana's Deerlodge or Beaverhead National Forests this year? A ban on weed-contaminated feed is now in effect for both Forests.

The Beaverhead National Forest, which merged with its neighboring Deerlodge NF in February 1996, has required that stock feed be certified weed-seed free for several years, and the restriction has now been extended to the Deerlodge portion of the administrative unit.

Introduced species like spotted knapweed and leafy spurge turn productive wildlife habitat into useless monoculture 'deserts,' and a common seed source for these interlopers is feed for riding and pack stock. Forest personnel will be checking for tagged weed-seed-free bales of feed, not just a letter from the grower. Violators will be requested to haul uncertified feed out; in flagrant cases, a ticket may be issued.

Contact any of the Ranger Districts of the Beaverhead-Deerlodge National Forests for a list of local certified feed suppliers.

NEW WEED THREATENS MONTANA

Rush skeletonweed (*Chondrilla juncea*) is a perennial plant which infests millions of acres in the Pacific Northwest and California. Seeds, probably from northern Idaho, have made their way into the far northwestern corner of Montana. Populations have been found in Sanders and Lincoln Counties, starting in 1991, and the plant may be expected in other surrounding counties. Originating in the Mediterranean region and Asia Minor, the plant has invaded Australia, New Zealand, South America, several European areas, as well as the USA.

Roger L Sheley and Joseph M Hudak have written a bulletin for the MSU Extension Service: *Rush Skeletonweed - A Threat to Montana's Agriculture*, publication #EB-132, April 1995. You should be able to obtain this bulletin from your local County Extension Service office.

The Montana Department of Agriculture, which has searched out and destroyed known populations in the northwestern counties, and would like to be informed of any new colonies our readers might come across. They hope, by a vigorous effort to banish these early inroads, to avoid another devastating encroachment such as spotted knapweed has made. Please pick up a copy of the bulletin and familiarize yourself with the plant's characteristics, then notify your County Weed District or Extension Agent if you locate it.

Our thanks to George Markin, Research Entomologist with the USFS Intermountain Research Station in Bozeman, for passing this information along to our readers.

MONTANA NATIVE PLANT SOCIETY *** MEMBERSHIP APPLICATION/RENEWAL

Date _____ New _____ Renewal _____

Please Print:

NAME _____ ADDRESS _____

CITY/STATE/ZIP _____ PHONE _____

STATEWIDE MEMBERSHIP WITH CHAPTER AFFILIATION*

- ___ \$12 I. Individual
___ 16 II. Family
___ 28 III. Business/Organization
___ 4 IV. Yearly chapter dues for Lifetime Members

MEMBER-AT-LARGE (Statewide membership only)

- ___ \$ 8 I. Individual
___ 12 II. Family
___ 25 III. Business/Organization
___ 150 IV. Lifetime member (one-time payment)

NOTE: For Canadian subscribers, add \$2.00 to each category

Additional Donation \$ _____ (donations may be specified toward a particular project or the general operating fund)

*AREAS COVERED BY CHAPTERS:

ARTEMISIA CHAPTER - Yellowstone and Carbon Counties; southeastern/south-central Montana

CLARK FORK CHAPTER - Lake, Mineral, Missoula, Powell and Ravalli Counties

FLATHEAD CHAPTER - Flathead and Lake Counties plus Glacier National Park

KELSEY CHAPTER - Lewis & Clark and Jefferson Counties

MAKA FLORA CHAPTER - Richland, Roosevelt, McCone, Sheridan and Daniels Counties

VALLEY OF THE FLOWERS CHAPTER - Gallatin, Park, Madison and Sweet Grass Counties plus Yellowstone National Park

All MNPS chapters welcome members from areas other than those indicated - we've listed the counties just to give you some idea of what part of the state is served by each chapter. More chapters are in the planning stages for other areas; watch for announcements of meetings in your local newspaper. Ten paid members are required for a chapter to be eligible for acceptance in MNPS.

Membership in the MONTANA NATIVE PLANT SOCIETY is on a calendar-year basis, March 1 through the end of February of the following year. New-member applications processed before the end of October each year will expire the following February; those processed after November 1 will expire in February of the year after. Membership renewal notices are included in the Winter issue of KELSEYA. Anyone who has not renewed by the time the Summer KELSEYA is ready to mail will be dropped from the mailing list/MNPS membership roster.

Your mailing label tells your

CLASS OF MEMBERSHIP (I, II, III, IV - see above)

CHAPTER AFFILIATION, if any (ART = Artemisia; CF = Clark Fork; F = Flathead; K = Kelsey; MAK = Maka Flora; VoF = Valley of Flowers)

DATE YOUR MEMBERSHIP EXPIRES: If your label reads "2/96" your membership expires February 28, 1996...use the above coupon to renew your membership any time. Please drop us a note if any information on your label is incorrect.

MAKE CHECKS PAYABLE TO:

MONTANA NATIVE PLANT SOCIETY

MAIL TO: Montana Native Plant Society/Membership

P O Box 8783

Missoula MT 59807-8783

PLEASE WELCOME THESE NEW MEMBERS:

(Note: This issue's list incorporates all new memberships since the Fall 1995 issue; lack of room precluded publishing the fourth quarter list last issue)

MONTANA

BILLINGS
Marge Brosius

FROID
Mindy & Fred Quivik

LIVINGSTON
Roberta Williams

NOXON
Brian Smith

IDAHO
PECK
Sarah Walker

BOZEMAN
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Inc

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Kristine Berg

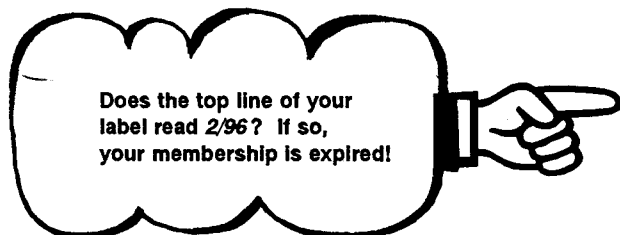
KALISPELL
Judith Pressmer
Jenny Tollefson



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MONTANA NATIVE PLANT SOCIETY

The Montana Native Plant Society is a 501-C-3 (not-for-profit) corporation chartered for the purpose of learning more about plants native to our state and their habitats, and of sharing that knowledge. Contributions to MNPS are tax deductible, and may be designated for a specific project or chapter, or may be made to the general fund.

Your yearly membership fee includes a subscription to KELSEYA, the newsletter of MNPS, published quarterly. We welcome your articles, clippings, field trip reports, meeting notices, book reviews - almost anything, in fact, that relates to our native plants or the Society. **Please include a line or two of "bio" information with each article.** Drawings should be in black ink or good-quality photocopy. If you send clippings, please note the source, volume/issue and date.

All meeting and field trip notices, field trip reports or announcements should be mailed to KELSEYA, Attn: Calendar, P O Box 6444, Bozeman MT 59771; articles should be sent to Terry Wamsley, P O Box 1304, Harlem MT 59526. All items should be typed or on disk - prefer 3.5" - in WordPerfect 4.2 or better, or in a generic ASCII file.

Changes of address and inquiries about membership in MNPS should be sent to MNPS, Attn: Membership, P O Box 8783, Missoula MT 59807-8783. General correspondence should also be sent to the Missoula address.

Advertising space is available in each issue at \$5/column inch. Ads must be camera-ready, and must meet the guidelines set by the Board of Directors for suitable subject matter: that is, be related in some way to plants or the interests of MNPS members.

Deadline for the SUMMER issue is JUNE 1; please include meeting/field trip notices through **mid-October '96**. The Summer issue of KELSEYA will be mailed the last week of June.

IF YOU MOVE, PLEASE SEND US YOUR CHANGE OF ADDRESS



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'NEW MASTHEAD' CONTEST FOR 10th ANNIVERSARY KELSEYA

The Autumn 1996 issue of KELSEYA will mark the start of our tenth year of publication of the newsletter of the Montana Native Plant Society.

To celebrate, we're having a contest to choose a **new masthead design** for KELSEYA. We number many excellent artists among our membership (although you need not be a member in order to submit an entry), and we'd like to encourage everyone interested to submit a masthead design.

Size of the camera-ready design should be 7.5" wide by a minimum of 2" (maximum 2.75") high. Minimum elements it should contain are: the name KELSEYA in a type style of your

choice; the volume and page number; and a rendering of the newsletter's mascot plant, *Kelseya uniflora*.

All designs should be done on white board or heavy paper stock in black ink.

Mail entries to KELSEYA editor, P O Box 6444, Bozeman MT 59771-6444, no later than **June 1**. Entries will be displayed and voted on at the 1996 Annual Meeting, and the winner will be featured - along with some reminiscences by individuals who were instrumental in getting MNPS started - in Volume 10, Number 1: the Autumn 1996 issue.

Let's see your creative best!